

## CLAIMS

1. A wireless communication apparatus for conducting wireless communications according to a time division duplex  
5 (TDD) system, comprising:

a plurality of antennas;

a transmission circuit for transferring a transmission signal to the plurality of antennas;

10 a reception circuit for transferring a reception signal from the plurality of antennas;

channel estimation means for detecting channel information using the reception signal from the reception circuit; and

15 correction value detection means for detecting a correction value for correcting deviation occurring between the transmission circuit and the reception circuit using the channel information from the channel estimation means,

20 wherein the correction value detection means detects the correction value using a correction signal transmitted from a wireless communication apparatus with which the wireless communication apparatus conducts communications.

2. The wireless communication apparatus according to claim 1, further comprising:

25 reception weight generation means for generating

reception weight using the channel information from the channel estimation means;

reception signal weighting and combining means for weighting a plurality of reception signals from the reception circuit using the reception weight and combining the signals;

transmission weight generation means for generating transmission weight using the reception weight and the correction value from the correction value detection means; and

transmission signal weighting means for weighting transmission data using the transmission weight.

3. The wireless communication apparatus according to claim 1 or 2, further comprising:

already known signal transmission means for transmitting an already known signal to the wireless communication apparatus communicating with the wireless communication apparatus,

wherein the correction value detection means detects the correction value for correcting deviation occurring between the transmission and reception circuits connected to each antenna from the correction signal transmitted from the wireless communication apparatus with which the wireless communication apparatus conducts communications and received by the wireless communication apparatus.

4. A wireless communication apparatus for conducting wireless communications with the wireless communication apparatus according to claim 3, comprising:

a plurality of antennas;

5 a transmission circuit for transferring a transmission signal to the plurality of antennas;

a reception circuit for transferring a reception signal from the plurality of antennas;

channel estimation means for estimating a channel  
10 estimation value based on a received already known signal;

correction signal generation means for generating a correction signal based on the channel estimation value; and

correction signal transmission means for transmitting the generated correction signal.

15

5. The wireless communication apparatus according to claim 4,

wherein the correction signal generation means generates the correction signal which becomes a reciprocal of the channel  
20 estimation value.

6. The wireless communication apparatus according to claim 4,

wherein the correction signal generation means  
25 decomposes the channel estimation value into singular values

and generates the correction signal using the result.

7. The wireless communication apparatus according to claim 3, further comprising:

5 distribution means for distributing a part of the transmission signal from the transmission means;

switch means for being connected so as to transfer the transmission signal distributed by the distribution means to the reception circuit; and

10 amplitude deviation correction value detection means for detecting an amplitude deviation correction value for correcting amplitude deviation changing as the signal before transferred through the transmission circuit and the signal after transferred through the reception circuit are input and  
15 are transferred through the transmission circuit or the reception circuit.

8. The wireless communication apparatus according to claim 7,

20 wherein the switch means switches so as to transfer a part of the transmission signal distributed by the distribution means to the reception circuit at the transmission timing in the time division duplex system and so as not to transfer a part of the transmission signal distributed by the distribution  
25 means to the reception circuit at the reception timing in the

time division duplex system.

9. The wireless communication apparatus according to claim  
4,

5 wherein the correction signal generation means generates  
the correction signal so as to correct phase rotation of the  
channel estimation value.